IN THE CLAIMS

Please add new claims 75 through 77. The current status of the claims is reflected in the below listing of claims.

1. (Previously presented) A method for electroplating a copper deposit onto a semiconductor integrated circuit device substrate with electrical interconnect features including submicron-sized features such that the surface has submicron-sized reliefs therein, the method comprising:

immersing the semiconductor integrated circuit device substrate into an electroplating bath including ionic copper, a suppressor, an accelerator, and an effective amount of a defect reducing agent to increase an overall chloride content and an overall sulfur content of the copper deposit, wherein the defect reducing agent is a reaction product of benzyl chloride and hydroxyethyl polyethylenimine; and

electroplating the copper deposit from said bath onto the substrate to superfill the submicron-sized reliefs by rapid bottom up deposition within the reliefs whereby the occurrence of protrusion defects from superfilling, surface roughness, and voiding due to uneven growth are reduced, and macro-scale planarity across the semiconductor integrated circuit device substrate is improved.

2. (Previously presented) The method of claim 1 wherein the defect reducing agent reduces high current density edge effect during the electroplating.

3. (Original) The method of claim 1 wherein the defect reducing agent improves distribution of deposited copper over the substrate surface.

4. (Original) The method of claim 1 wherein the deposit has a deposit thickness of about 1 micron and which varies by no more than about 0.2 microns across the deposit, the deposit thickness being measured from an upper surface of the deposit to the substrate surface at its thickest point.

5. (Original) The method of claim 1 wherein the defect reducing agent facilitates deposition of a thinner overall deposit to achieve a minimum thickness across the substrate than an overall deposit required to achieve such minimum thickness by electroplating without said defect reducing agent.

6. (Previously presented) The method of claim 1 further comprising removing a portion of the copper deposit by chemical and mechanical action to yield a level substrate, wherein an amount of copper deposit to be removed is less than an amount of copper deposit which must be removed by chemical and mechanical action to yield a level substrate in a comparable substrate electroplated without said defect reducing agent.

7. (Original) The method of claim 6 wherein pitting corrosion from said chemical action is less severe than pitting corrosion in the comparable substrate electroplated without said defect reducing agent.

8. - 16. (Canceled)

17. (Previously presented) A method for electroplating a copper deposit onto a semiconductor integrated circuit device substrate having electrical interconnect features including submicron-sized features such that the surface has submicron-sized reliefs therein, the method comprising:

immersing the semiconductor integrated circuit device substrate into an electroplating bath including ionic copper, a suppressor, an accelerator, and an effective amount of a defect reducing agent which (a) reduces a rate of recrystallization and grain growth in the copper deposit, thereby reducing the formation of internal voids within the copper deposit and (b) increases a chloride content and a sulfur content of the copper deposit as compared to a chloride content and a sulfur content of a copper deposit from a comparable electroplating bath not containing the defect reducing agent; and

electroplating the copper deposit from said bath onto the semiconductor integrated circuit device substrate to superfill the submicron-sized reliefs by rapid bottom up deposition within the reliefs, which deposit subsequently undergoes said recrystallization and grain growth at said reduced rate and thereby is characterized by a reduced concentration of internal voids;

wherein the defect reducing agent is a reaction product of benzyl chloride and hydroxyethyl polyethylenimine.

18. - 64. (Canceled)

65. (Previously presented) The method of claim 1 wherein the electroplating bath further includes sulfuric acid present in an amount between about 150 g/L and about 225 g/L.

66. (Previously Presented) The method of claim 1 wherein a source of the ionic copper is copper sulfate pentahydrate present in an amount between about 59 g/L and about 75 g/L.

67. (Previously Presented) The method of claim 1 wherein the electroplating bath comprises 1.0 mL/L of said defect reducing agent.

68. (Previously Presented) The method of claim 1 wherein the electroplating bath comprises 2.0 mL/L of said defect reducing agent.

69. (Previously Presented) The method of claim 1 wherein the electroplating bath comprises 5.0 mL/L of said defect reducing agent.

70. (Previously presented) The method of claim 1 wherein the sulfur content in the copper deposit is at least about 1.5×10^{18} atoms/cm^3.

71. (Previously presented) The method of claim 1 wherein sulfur content in the copper deposit is at least about 3.0×10^{18} atoms/cm^3.

72. (Previously presented) The method of claim 17 wherein the sulfur content in the copper deposit is at least about 1.5×10^{18} atoms/cm^3.

73. (Previously presented) The method of claim 17 wherein sulfur content in the copper deposit is at least about 3.0×10^{18} atoms/cm^3.

74. (Previously presented) The method of claim 1 wherein the semiconductor integrated circuit device substrate is a silicon wafer.

75. (New) A process as set forth in claim 65 wherein the electroplating bath comprises copper ion in a proportion between about 50 g/L and saturation.

76. (New) A process as set forth in claim 75 wherein the electroplating bath comprises copper ion in a proportion between about 10 g/L and about 50 g/L.

77. (New) A process as set forth in claim 76 wherein the electroplating bath comprises copper sulfate in a proportion equivalent to between 59 g/L and about 75 g/L copper sulfate pentahydrate.